

ABSTRACT

NMB1343 is an ADP-ribosylating toxin from *Neisseria meningitidis*. The invention provides a mutant toxin having a substitution at one or more of amino acid Glu-109, Glu-111 or Glu-120. The mutations(s) is/are preferably Glu to Asp. The protein of the invention preferably has reduced or eliminated ADP-ribosyltransferase and/or NAD-glycohydrolase activity relative to the wild-type protein.